

# **Comatrol**

**RESPONSIVENESS IN MOTION**

*Member of the Danfoss Group*



## **Pressure Reducing Valves**

**[www.comatrol.com](http://www.comatrol.com)**

Pressure Reducing, Non-Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP230-2	SDC10-3	Pressure Reducing, Non-Relieving,	40 l/min [10 US gal/min]	210 bar [3000 psi]	PR - 5
	PRC 06	NCS06/3	Direct Acting	40 l/min [10 US gal/min]	315 bar [4500 psi]	PR - 6

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP230-1	SDC10-3	Pressure Reducing, Relieving, Direct Acting	40 l/min [10 US gal/min]	210 bar [3000 psi]	PR - 7

Pressure Reducing, Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	PRR10-PVG	SDC10-3	Pressure Reducing, Relieving, Direct Acting, Designed for PVG Actuators	40 l/min [10 US gal/min]	210 bar [3000 psi]	PR - 8

Pressure Reducing, Non-Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP230-4	SDC10-3	Pressure Reducing, Non-Relieving,	40 l/min [10 US gal/min]	350 bar [5000 psi]	PR - 9
	PPRC 06	NCS06/3	Pilot Operated	40 l/min [10 US gal/min]	315 bar [4500 psi]	PR - 10

Pressure Reducing, Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	PRMP 064	SDC10-3	Pressure Reducing, Relieving,	40 l/min [10 US gal/min]	315 bar [4500 psi]	PR - 11
	CP231-3	CP12-3S	Pilot Operated	115 l/min [30 US gal/min]	350 bar [5000 psi]	PR - 12

Pressure Reducing, Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	PRR10-DRD	SDC10-4	Pressure Reducing, Relieving, Direct Acting with Damping Port	38 l/min [10 US gal/min]	207 bar [3000 psi]	PR - 13

\* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

**PRESSURE REDUCING VALVES**

Pressure reducing valves are pressure limiting devices that limit pressure in one portion of a circuit while leaving system pressure unaffected. They are available in direct-acting and pilot-operated types and as pressure reducing/relieving valves or as pressure reducing valves only.

Pressure reducing valves



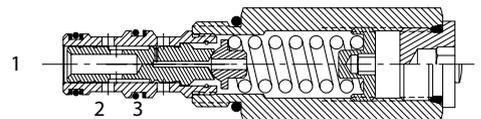
**DIRECT ACTING PRESSURE REDUCING / RELIEVING VALVES**

Direct-acting pressure reducing/relieving valves allow flow to pass from 2 to 1 until the pressure at 1 reaches the predetermined setting, at which point the spool shifts to restrict input flow from 2 (reducing mode) or to open flow from 1 to 3 (relieving mode) as needed to maintain the regulated pressure at 1.

Advantages of direct-acting pressure reducing valves are:

- Fast response
- Economical

Direct acting pressure reducing valve



A typical application for direct-acting pressure reducing valves is for pressure control in systems requiring two or more different pressure settings. These valves are best suited for low flow applications such as hydraulic brake or motor shift.

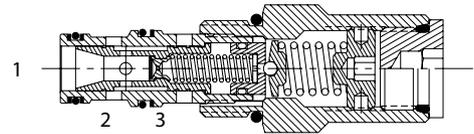
**PILOT-OPERATED  
PRESSURE REDUCING /  
RELIEVING VALVES**

Pilot-operated pressure reducing/relieving valves operate similarly to direct-acting pressure reducing/relieving valves -- the spool allows flow to pass from 2 to 1 until the pressure at 1 reaches the predetermined setting and forces the pilot poppet off its seat. This creates a pressure differential across the spool that causes the spool to shift and maintain regulated pressure at 1 in the same manner as the direct-acting pressure reducing/relieving valve.

Advantages of pilot-operated relief valves are:

- Smooth, stable response
- High pressure capability
- Precise pressure control with varying flow rates

Pilot-operated pressure reducing valve

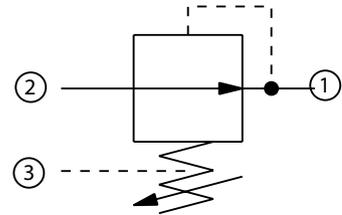


A typical application for pilot-operated pressure reducing valves is for pressure control in systems requiring two or more different pressure settings where high pressure capability and/or extremely precise pressure control is required.

**OPERATION**

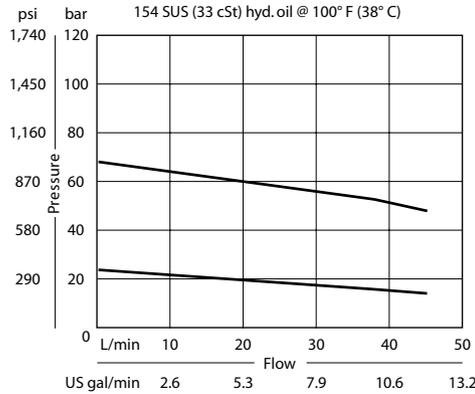
This is a direct-acting pressure-reducing (non-relieving) valve.

Schematic



**SPECIFICATIONS**

Theoretical performance



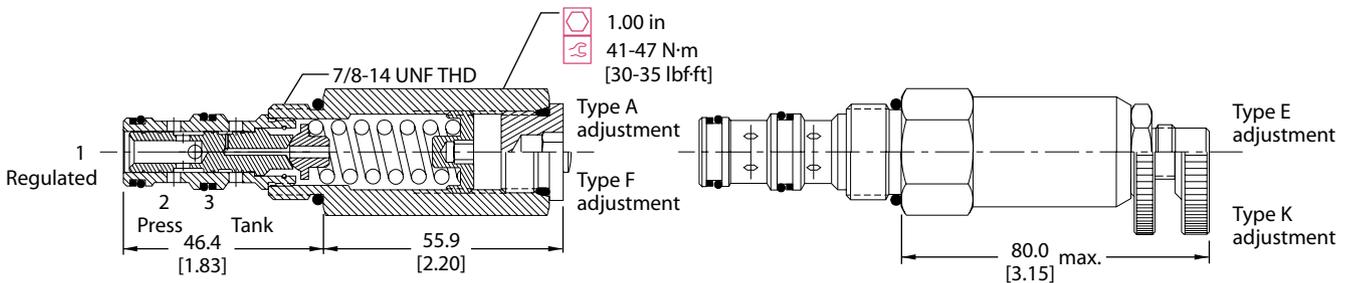
Specifications

<b>Rated pressure</b>	210 bar [3000 psi]
<b>Rated flow at 7 bar [100 psi]</b>	40 l/min [10 US gal/min]
<b>Weight</b>	0.25 kg [0.56 lb]
<b>Cavity</b>	SDC10-3

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

**CP230 - 2 - B - 6S - A - C - 100**

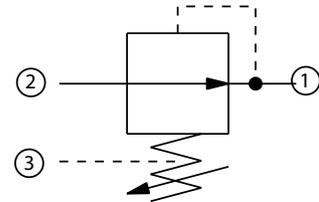
<b>Seals</b> B = Buna-N V = Viton	<b>Seal kit</b> 120027 120028	<b>Housing P/N</b> No Housing SDC10-3-SE-3B SDC10-3-SE-4B CP10-3-6S CP10-3-8S	<b>Crack pressure</b> Code x 10 = psi Example: 100 = 1000 psi																								
<b>Housing and ports</b> 0 = No Housing SE3B = AI, 3/8 BSP SE4B = AI, 1/2 BSP 6S = AI, #6 SAE 8S = AI, #8 SAE Other housings available			<b>Pressure range</b>																								
<b>Adjustment option</b> A = Internal E = External F = Tamper resistant K = Knob			<table border="0"> <tr> <td>A =</td> <td>4-28</td> <td>[psi]</td> </tr> <tr> <td>Std. setting</td> <td>17</td> <td>[250]</td> </tr> <tr> <td>B =</td> <td>5-55</td> <td>[75-800]</td> </tr> <tr> <td>Std. setting</td> <td>28</td> <td>[400]</td> </tr> <tr> <td>C =</td> <td>7-97</td> <td>[100-1400]</td> </tr> <tr> <td>Std. setting</td> <td>69</td> <td>[1000]</td> </tr> <tr> <td>D =</td> <td>34-166</td> <td>[500-2400]</td> </tr> <tr> <td>Std. setting</td> <td>103</td> <td>[1500]</td> </tr> </table>	A =	4-28	[psi]	Std. setting	17	[250]	B =	5-55	[75-800]	Std. setting	28	[400]	C =	7-97	[100-1400]	Std. setting	69	[1000]	D =	34-166	[500-2400]	Std. setting	103	[1500]
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Std. setting	69	[1000]																									
D =	34-166	[500-2400]																									
Std. setting	103	[1500]																									

PR - Pressure Reducing Valves  
CP230-2

**OPERATION**

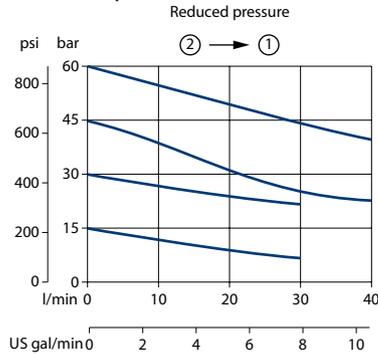
This is a direct-acting pressure reducing (non-relieving) valve.

Schematic



**SPECIFICATIONS**

Theoretical performance



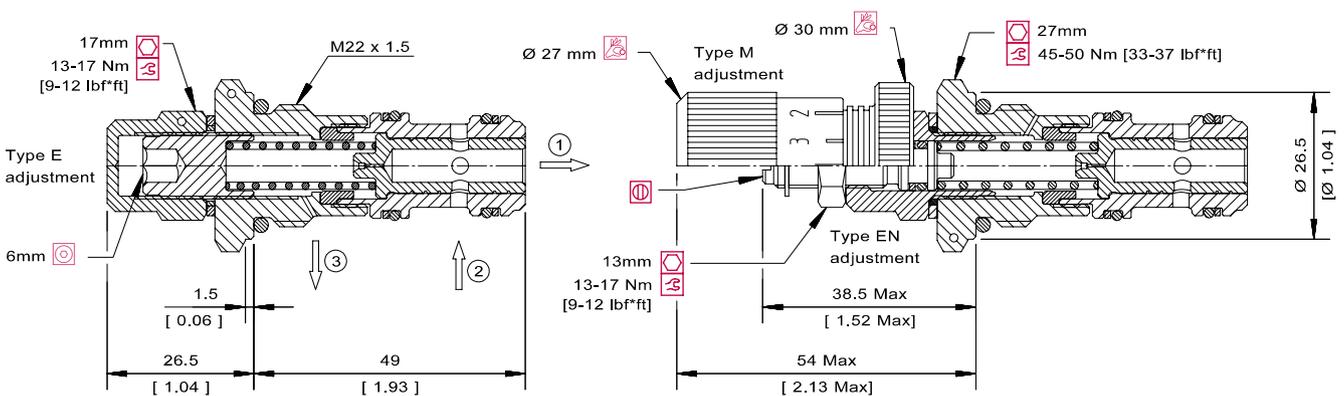
Specifications

<b>Rated pressure</b>	315 bar [4500 psi]
<b>Rated Flow</b>	40 l/min [10 US gal/min]
<b>Weight</b>	0.14 kg [0.31 lb]
<b>Cavity</b>	NCS06/3

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

**PRC 06 - EN - 1 - 00 - V**

**Type of adjustment**

E = Internal screw  
 EN = External screw  
 M = Handwheel

**Setting range**

.5 = 1-10 bar [14.5-145 psi]  
 1 = 10 - 25 bar [145-363 psi]  
 2 = 25-80 bar [363-1160 psi]

**Seals**

V = Viton  
 B = Buna-N

**Housing and ports**

00 = No Housing  
 SE3/8 = AL, 3/8 BSP  
 SE1/2 = AL, 1/2 BSP  
 SE6S = AL, #6 SAE  
 SE8S = AL, #8 SAE  
 Other housings available

**Seal kit**

230000110  
 230000070

**Housing P/N**

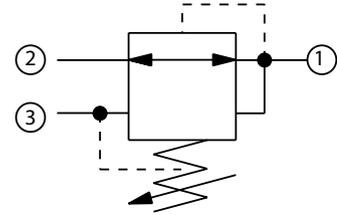
No Housing  
 NCS06/3-SE-3/8  
 NCS06/3-SE-1/2  
 NCS06/3-SE-6S  
 NCS06/3-SE-8S

To order this valve with a specific factory setting, contact your Sauer-Danfoss representative

**OPERATION**

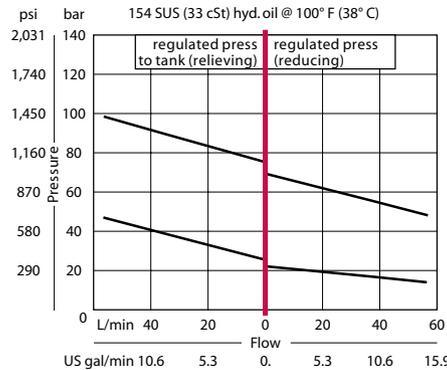
This is a direct-acting pressure reducing/relieving valve.

Schematic



**SPECIFICATIONS**

Theoretical performance



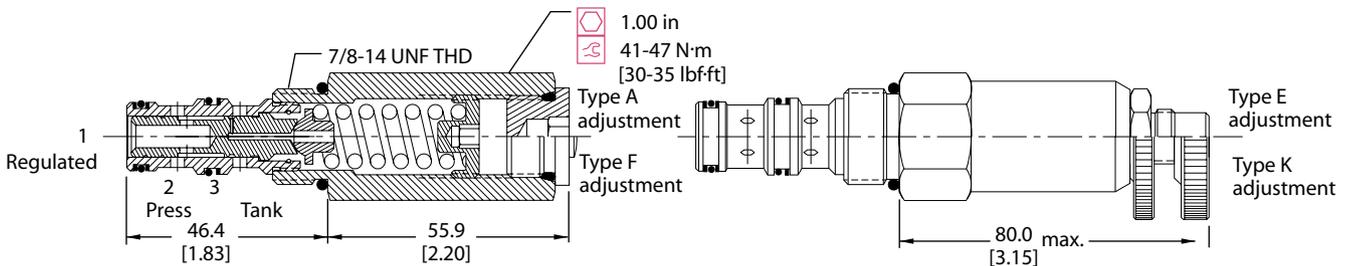
Specifications

<b>Rated pressure</b>	210 bar [3000 psi]
<b>Rated flow at 7 bar [100 psi]</b>	40 l/min [10 US gal/min]
<b>Weight</b>	0.23 kg [0.51 lb]
<b>Cavity</b>	SDC10-3

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP230 - 1 - B - 6S - A - C - 100

**Seals**  
 B = Buna-N  
 V = Viton

**Seal kit**  
 120570  
 120571

**Housing and ports**  
 0 = No Housing  
 SE3B = Al, 3/8 BSP  
 SE4B = Al, 1/2 BSP  
 6S = Al, #6 SAE  
 8S = Al, #8 SAE  
 Other housings available

**Housing P/N**  
 No Housing  
 SDC10-3-SE-3B  
 SDC10-3-SE-4B  
 CP10-3-6S  
 CP10-3-8S

**Pressure setting**  
 Code x 10psi (0.69 bar)  
 Example: 100 = 1000 psi (70 bar)

**Pressure range**

	bar	[psi]
A =	4-28	[50-400]
Std. setting	17	[250]
B =	5-55	[75-800]
Std. setting	28	[400]
C =	7-97	[100-1400]
Std. setting	69	[1000]
D =	34-166	[500-2400]
Std. setting	103	[1500]

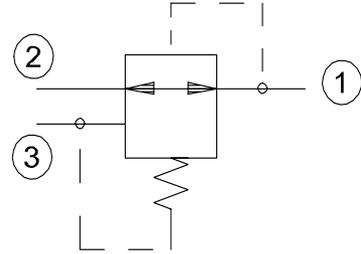
**Adjustment option**  
 A = Internal  
 E = External  
 F = Tamper resistant  
 K = Knob

**PRR10-PVG**

**OPERATION**

This is a direct-acting pressure reducing/relieving valve, designed for PVG actuators.

**Schematics**

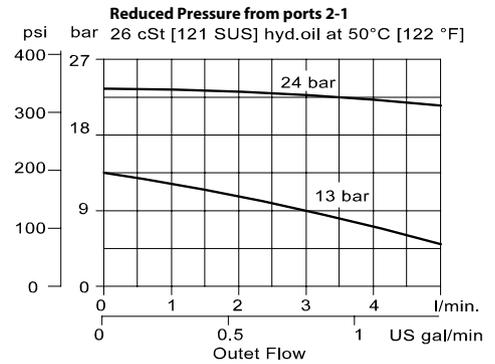
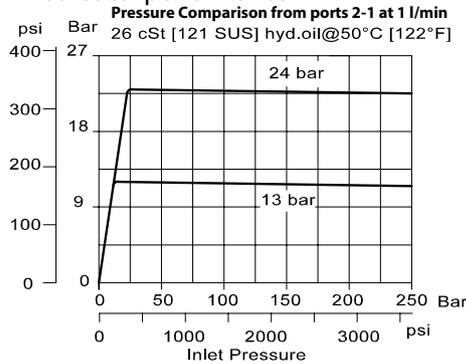


**SPECIFICATIONS**

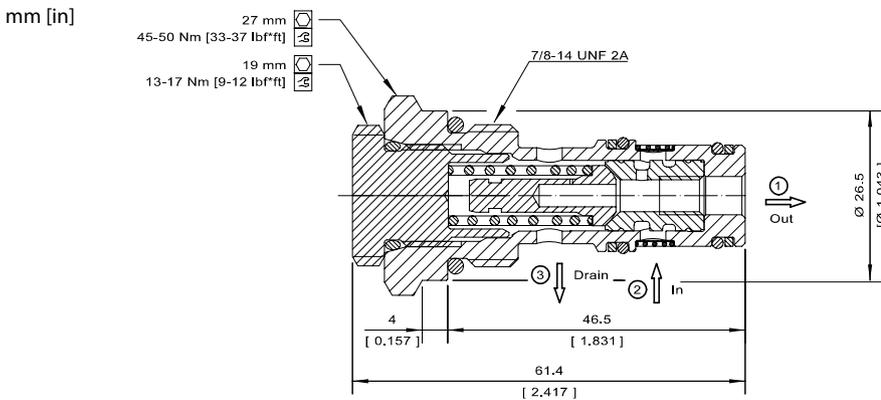
<b>Max. pressure in port 2</b>	210 bar [3000 psi]
<b>Maximum flow</b>	5 l/min [1.3 US gal/min]
<b>Cartridge Weight</b>	0.23 kg [0.51 lb]
<b>Cavity</b>	SDC10-3

**DIMENSIONS**

**Theoretical performance**



**Cross-sectional view**



**ORDERING INFORMATION**

**PRR10-PVG-E-13-B-F-00**

Pressure setting: \_\_\_\_\_  
 E13 = 13 Bar for Electrical (PVE)  
 H24 = 24 Bar for Hydraulic (PVH) or High Current (PVHC)

Body and ports  
 00 = Cartridge only  
 6S = Al, #6 SAE  
 8S = Al, #8 SAE  
 SE3B = Al, 3/8 BSP  
 SE4B = Al, 1/2 BSP  
 Other housings available

Body Nomenclature  
 No Body  
 CP10-3-6S  
 CP10-3-8S  
 SDC10-3-SE3B  
 SDC10-3-SE4B

F = FILTER 300um  
 (Omit if not required)

SEALS  
 B = Buna  
 V = Viton

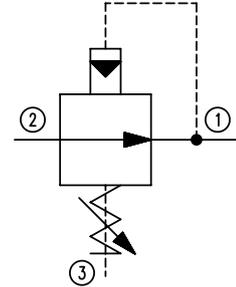
SEAL KIT  
 230000650  
 354001019

PR - Pressure Reducing Valves  
PRR10-PVG

**OPERATION**

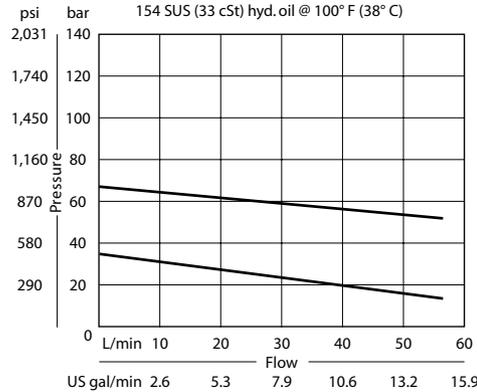
This is a pilot-operated pressure-reducing (non-relieving) valve.

Schematic



**SPECIFICATIONS**

Theoretical performance



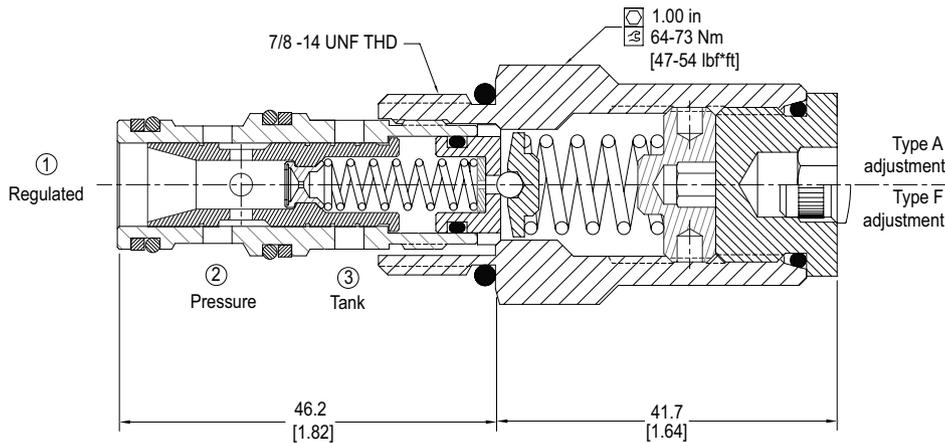
Specifications

<b>Rated pressure</b>	350 bar [5000 psi]
<b>Rated flow at 7 bar [100 psi]</b>	40 l/min [10 US gal/min]
<b>Weight</b>	0.20 kg [0.43 lb]
<b>Cavity</b>	SDC10-3

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

**CP230 - 4 - B - 6S - A - C - 150**

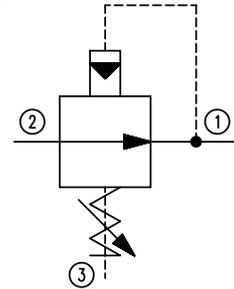
<b>Seals</b> B = Buna-N V = Viton	<b>Seal kit</b> 120027 120028	<b>Housing P/N</b> No Housing SDC10-3-SE-3B SDC10-3-SE-4B CP10-3-6S CP10-3-8S	<b>Pressure setting</b> Code x 10psi (0.69 bar) Example: 150 = 1500 psi (105 bar)																											
<b>Housing and ports</b> 0 = No Housing SE3B = Al, 3/8 BSP SE4B = Al, 1/2 BSP 6S = Al, #6 SAE 8S = Al, #8 SAE Other housings available	<b>Adjustment option</b> A = Internal E = External F = Tamper resistant K = Knob	<b>Pressure range</b>																												
			<table border="1"> <thead> <tr> <th></th> <th>bar</th> <th>[psi]</th> </tr> </thead> <tbody> <tr> <td>A = Standard</td> <td>14-55</td> <td>[200-800]</td> </tr> <tr> <td>B = Standard</td> <td>28</td> <td>[400]</td> </tr> <tr> <td>B = Standard</td> <td>21-103</td> <td>[300-1500]</td> </tr> <tr> <td>C = Standard</td> <td>69</td> <td>[1000]</td> </tr> <tr> <td>C = Standard</td> <td>28-207</td> <td>[400-3000]</td> </tr> <tr> <td>D = Standard</td> <td>103</td> <td>[1500]</td> </tr> <tr> <td>D = Standard</td> <td>28-345</td> <td>[400-5000]</td> </tr> <tr> <td>D = Standard</td> <td>103</td> <td>[1500]</td> </tr> </tbody> </table>		bar	[psi]	A = Standard	14-55	[200-800]	B = Standard	28	[400]	B = Standard	21-103	[300-1500]	C = Standard	69	[1000]	C = Standard	28-207	[400-3000]	D = Standard	103	[1500]	D = Standard	28-345	[400-5000]	D = Standard	103	[1500]
	bar	[psi]																												
A = Standard	14-55	[200-800]																												
B = Standard	28	[400]																												
B = Standard	21-103	[300-1500]																												
C = Standard	69	[1000]																												
C = Standard	28-207	[400-3000]																												
D = Standard	103	[1500]																												
D = Standard	28-345	[400-5000]																												
D = Standard	103	[1500]																												

PR - Pressure Reducing Valves CP230-4

**OPERATION**

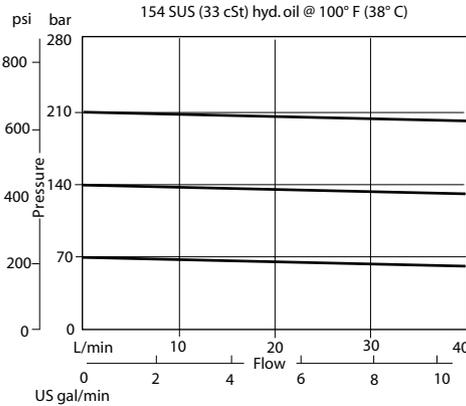
This is a pilot-operated pressure reducing (non-relieving) valve.

Schematic



**SPECIFICATIONS**

Theoretical performance



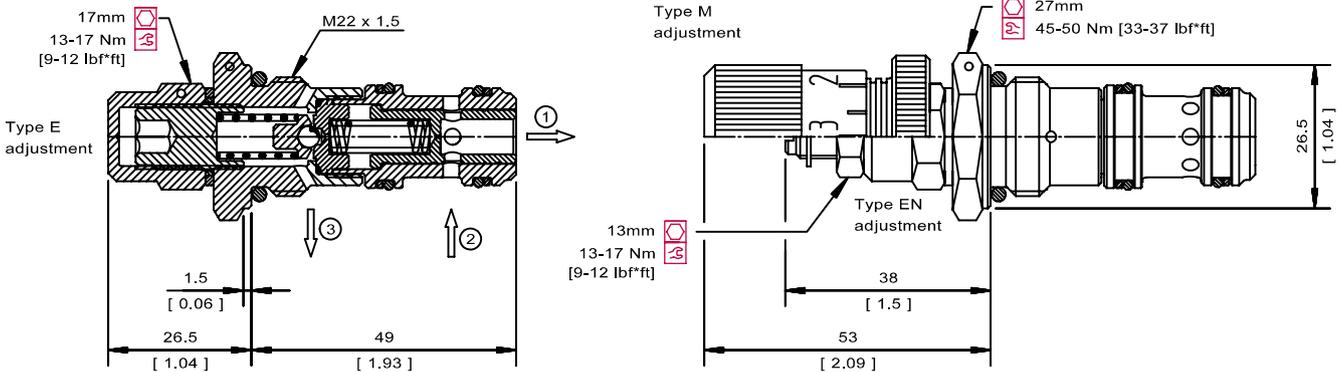
Specifications

<b>Rated pressure</b>	315 bar [4500 psi]
<b>Rated flow at 7 bar [100 psi]</b>	40 l/min [10 US gal/min]
<b>Weight</b>	0.14 kg [0.31 lb]
<b>Cavity</b>	NCS06/3

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

PPRC 06 - EN - 1 - 00 - V

**Type of adjustment**

- E = Internal screw
- EN = External screw
- M = Handwheel

**Setting range**

- 1 = 10-70 bar [145-1015 psi]
- 2 = 30-140 bar [435-2031 psi]
- 3 = 70-210 bar [1015-3046 psi]

**Seals**

- V = Viton
- Omit = Buna-N

**Housing and ports**

- 00 = No Housing
- SE3/8 = AL, 3/8 BSP
- SE1/2 = AL, 1/2 BSP
- SE6S = AL, #6 SAE
- SE8S = AL, #8 SAE
- Other housings available

**Seal kit**

- 230000110
- 230000070

**Housing P/N**

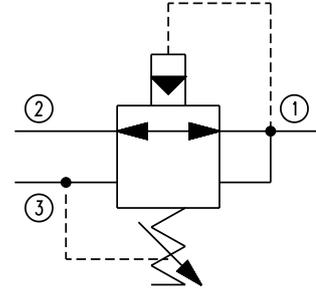
- No Housing
- NCS06/3-SE-3/8
- NCS06/3-SE-1/2
- NCS06/3-SE-6S
- NCS06/3-SE-8S

To order this valve with a specific factory setting, contact your Sauer-Danfoss representative

**OPERATION**

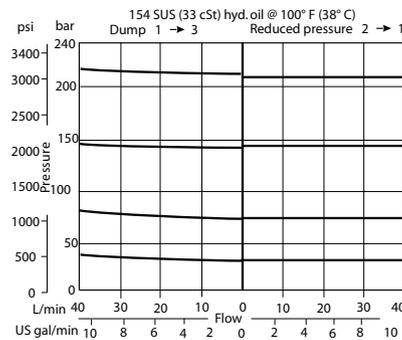
This is a pilot-operated pressure reducing/relieving valve.

Schematic



**SPECIFICATIONS**

Theoretical performance



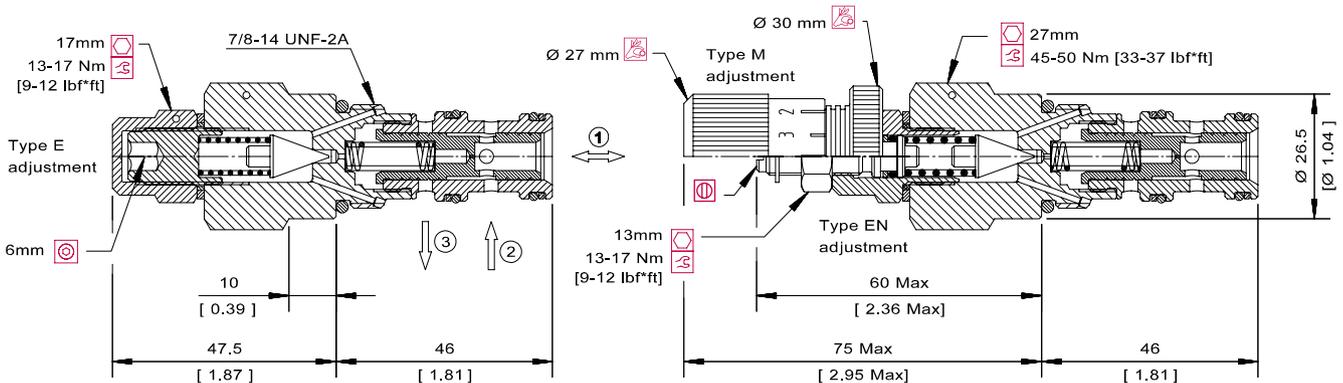
Specifications

<b>Rated pressure</b>	315 bar [4500 psi]
<b>Rated Flow</b>	40 l/min [10 US gal/min]
<b>Weight</b>	0.21 kg [0.46 lb]
<b>Cavity</b>	SDC10-3

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

**PRMP 064 - EN - 1 - SE3/8 - V**

**Adjustment**

- E = Internal screw
- EN = External screw
- M = Handwheel

**Setting range**

- 1 = 10-70 bar [145-1015 psi]
- 2 = 30-140 bar [435-2031 psi]
- 3 = 70-210 bar [1015-3046 psi]

**Seals**

- V = Viton      354003719
- Omit = Buna-N      230000070

**Seal Kit**

**Housing and ports**

- 00 = No Housing      No Housing
- SE3B = Al, 3/8 BSP      SDC10-3-SE-3B
- SE4B = Al, 1/2 BSP      SDC10-3-SE-4B
- 6S = Al, #6 SAE      CP10-3-6S
- 8S = Al, #8 SAE      CP10-3-8S

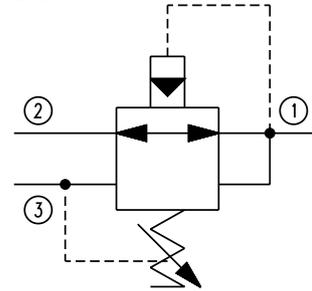
Other housings available

To order this valve with a specific factory setting, contact your Sauer-Danfoss representative

**OPERATION**

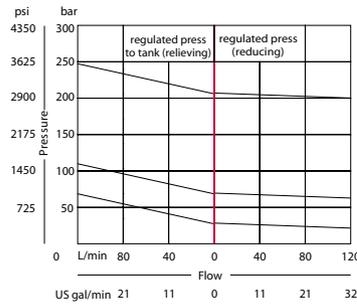
This is a pilot-operated pressure reducing/relieving valve.

Schematic



**SPECIFICATIONS**

Theoretical performance



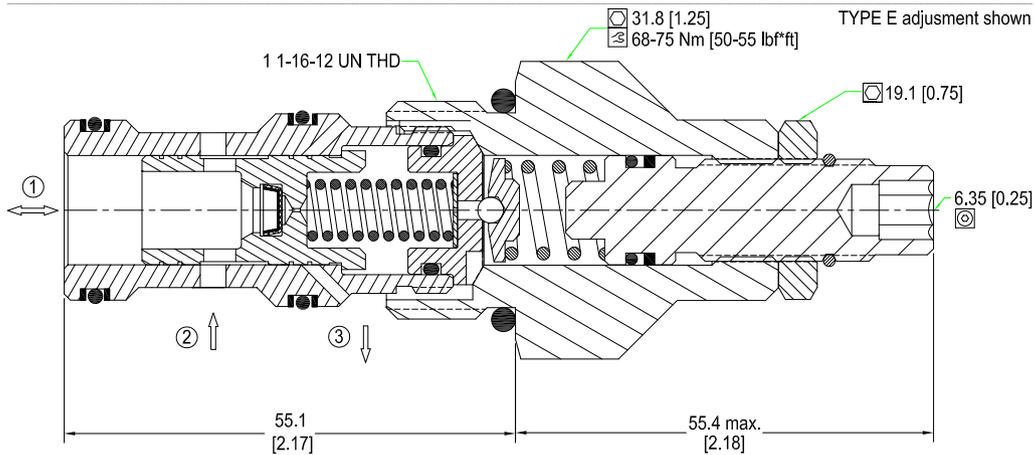
Specifications

<b>Rated pressure</b>	350 bar [5000 psi]
<b>Rated flow at 7 bar [100 psi]</b>	115 l/min [30 US gal/min]
<b>Weight</b>	0.27 kg [0.60 lb]
<b>Cavity</b>	CP12-3S

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

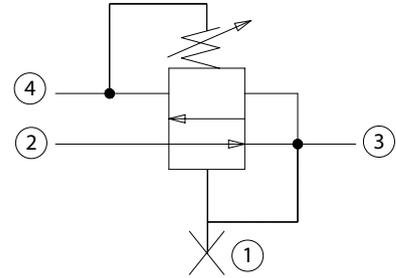
**CP231-3-B-10S-A-A-050**

- Seals**  
 B = Buna-N  
 V = Viton
- Seal kit**  
 120335  
 120336
- Adjustment options**  
 A = Internal  
 F = Tamper Resistant  
 E = External  
 K = Knob
- Pressure range**  
 A = 14-55 bar [200-800 psi]  
 B = 21-103 bar [300-1500 psi]  
 C = 27-207 bar [400-3000 psi]  
 D = 27-345 bar [400-5000 psi]
- Pressure setting**  
 Code x 10psi (0.69 bar)  
 Example: 050 = 500 psi (34 bar)
- Housing and ports**  
 0 = No Housing  
 4B = Al, 1/2 BSP  
 6B = Al, 3/4 BSP  
 10S = Al, #10 SAE  
 12S = Al, #12 SAE  
 Other housings available
- Housing P/N**  
 No Housing  
 CP12-3S-4B/2B  
 CP12-3S-6B/2B  
 CP12-3S-10S/4S  
 CP12-3S-12S/4S

**OPERATION**

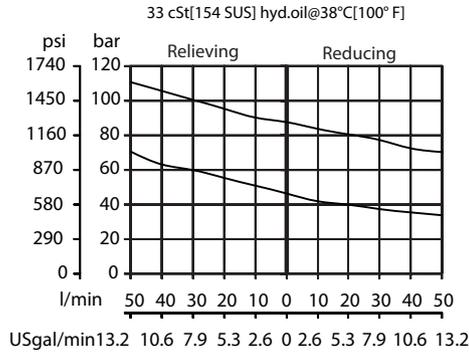
This is a direct-acting pressure reducing/relieving valve, with damping port.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



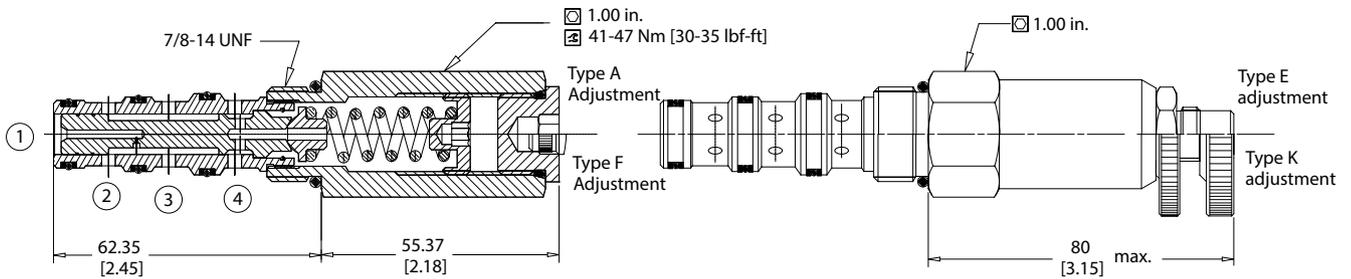
**Specifications**

<b>Rated pressure</b>	105 bar [1522 psi]
<b>Rated Flow at 7 bar [100 psi]</b>	38 l/min [10 US gal/min]
<b>Weight</b>	0.29 kg [0.64 lb]
<b>Cavity</b>	SDC10-4

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**PRR10-DRD-4-E-104-B-00**

Pressure Range 1 = 4-27 bar [50-400 psi] Standard Setting 21 bar [300 psi] 2 = 5-55 bar [70-800 psi] Standard Setting 35 bar [500 psi] 3 = 7-96 bar [100-1400 psi] Standard Setting 69 bar [1000 psi] 4 = 35-165 bar [500-2400 psi] Standard Setting 104 bar [1500 psi]	Adjustment Type A = Internal E = External F = Tamper Resistant K = Knob	Housing and ports 00 = No Housing 3B = Al, 3/8 BSP 4B = Al, 1/2 BSP 6S = Al, #6 SAE 8S = Al, #8 SAE	Seal Kit B = Buna-N 120023 V = Viton 120024	Housing Part # No Housing CP10-4-3B CP10-4-4B CP10-4-6S CP10-4-8S
Pressure Setting 104 = 104 bar [1500 psi] XXX = Standard Setting				

P108 370E

